PCT/AU03/00984
10/523660

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I, JULIE BILLINGSLEY, TEAM LEADER EXAMINATION SUPPORT AND SALES hereby certify that annexed is a true copy of the Provisional specification in connection with Application No. 2002953379 for a patent by KEREN JORGENSON as filed on 17 December 2002.

I further certify that the name of the applicant has been amended to YARRA RIDGE PTY LTD pursuant to the provisions of Section 104 of the Patents Act 1990.

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Twenty-first day of August 2003

J. Billingsley

JULIE BILLINGSLEY
TEAM LEADER EXAMINATION
SUPPORT AND SALES

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PROVISIONAL APPLICATION

Title

A mechanism-B

The following statement is a full description of this invention, including the best method of performing it known to me:-

Field of the Invention

This invention relates to door locks.

Summary of the Invention

According to the invention there is a door lock including a pivotal bolt having at least one sideways protruding arcular blade that is engageable behind the periperal wall of a slot within a strike plate.

According to the invention there is a door lock including a strike plate having an entry aperture of suitable width connected to an offset aperture of reduced width and less than the widest width of the bolt wherein at least one side wall of this aperture comprises the engageable peripheral wall.

According to the invention there is a door lock including a casing, an unlatching slide, wherein the bolt includes a return arm engageable by a drive end of the slide to cause the bolt to retract into the casing against bolt biasing means. Preferably the unlatching slide comprises a ~~rectlinearly~~ ~~vertically~~ displaceable plate supported within the casing ~~against an inside wall~~ and having a lead end. Preferably the return arm supports a sideways protruding bolt pin that lies within the locus of movement of the lead end. ~~Preferably the said pin is profiled so that the effective radial length of the point~~

~~of contact on the return arm reduces as the cam advances towrds the fully restricted position.~~ Preferably the portions in contact when in contact of the unlatching slide and protruding bolt pin are characterized by relative angular displacement without relative translation. Preferably, the bolt when being displaced by the unlatching slide supports the adjacent end of the unlatching slide. Preferably the motion of the unlatching slide is at least in-part crank motion wherein the motion of a portion adjacent the bolt has a locus of displacement that is circular while the motion of a portion adjacent the unlatching cam has a locus of displacement that is substntially rectilinear.

According to the invention there is a door lock including at least one unlatching cam that has angled driving shoulders either of which may engage an associated driven shoulder of the unlatching slide to cause the said slide to be displaced towards the bolt whereby to cause the bolt to retract.

According to the invention there is a door lock including an unlatching lever connected by shaft to an associated unlatching cam. Preferably the unlatching slide is biassed towards the unlatching cam by slide biassing means whereby to define and urge the lever towards an undisplaced position. Preferably there is an exterior unlatching cam connected to an exterior lever by an exterior shaft and preferably there is an interior unlatching cam connected to an interior lever by an interior shaft whereby the bolt can be caused to rotract by operation of either lever.

Preferably, the exterior unlatching cam has a exterior stop recess and the casing includes ~~a rectilinearly~~ a displaceable stop member that is displaceable by hand to engage within the stop recess whereby to restrain the exterior lever against displacement. Preferably the interior unlatching cam has ramped peripheral unstopping portions, which when both cams are undisplaced, eminate from positions adjacent each side of the stop recess wherein displacement of the interior unlatching cam in either direction brings an unstopping portion into contact with the stop member to cause it to be displaced from the stop recess. Preferably the stop member is connected to a push button with te interior door furniture

According to the invention there is a door lock including a deadlocking member supported by the unlatching slide and displaceable relative to the said slide. Preferably the deadlocking member is biassed towards the arcular blade. Preferably when the bolt is fully extended and the unlatching slide is undisplaced and adjacent each driven shoulder, a leading portion of the deadlocking slide is disposed behind the blade restricting the bolt from being inwardly displaced. Preferably, when the unlatching slide

commences displacement, the initial movement causes the leading portion to be displaced from behind the blade to enable the bolt to be displaced to the reytracted position. Preferably the deadlocking member is a rocker-like member supported on a pivotal shaft carried by the unlatching slide (as shown in the provisional application of 15/12/02)

According to the invention there is a door lock including a pre-latching stop that restrains the bolt in a partly extended position, said stop having a stop arm with an engaging stop end that is biassed away from the periphery of the bolt. Preferably the stop end is ramped in profile and preferably this mates within a mating recess of the bolt and preferanbly the angle of the ramps is such that movement of the engaging stop end away from the bolt causes the bolt to move towards the retracted position. Preferably the bolt biassing means is sufficiently strong that the bolt cannot be caused to move towards the retracted psotion by the stop member. Preferably the stop includes an opposed arm having an end portion that lies within the locus of movement of a compression spring carried in the drive end of the unlatching slide. Preferably when the unlatching slide has caused the bolt to retract, the compression spring acts on the opposed arm to cause the opposite end to become biassed towards the bolt.

The invention further provides a lock where the bolt is disposed vertically between the unlatching cam and the key operable double cylinder.

The invention further provides a lock according to any features described above and where dimension L of Figure 1 is 85.00 mm whereby to render the lock compatatable with door furniture of common configuration

The invention further provides a lock according to any features described above and where dimension l_1= is substantially the same as that of common security door locks.

The invention further provides a lock according to any features described above and where $l_2 = l_1/2$

The invention further provides a lock substantially as described herein with reference to and as illustrated in the accompanying drawings.

Description of the Drawings

Embodiments of the present invention will now be described by way of example only with reference to the accompanying drawings in which:

Figure 1 a is a schematic view of the lock when the bolt is fully extended

Figure 2A is a schematic view of the lock when the bolt has been caused to become fully retracted by lever operation.

Figure 3A is a view of the lock when the bolt is partly extended in a pre-latching configuration.

Figure 4 is a view of the lock when the bolt is inwardly displaced by the strike plate.

Fig 5 is a lock including the deadlocking slide

Description of the Preferred Embodiments

This application desctribes further improvements to the invention as filed on December 16, 2002 and where in some forms the lock includes a **pivotal bolt** 1 having at least one sideways protruding **arcular blade 2** that is engageable behind the **periperal wall** of a slot within a **strike plate 4.** Preferably there is an arcular blade on each side of the bolt.

In some forms the lock includes includes a strike plate having an **entry aperture** 5 of suitable width connected to an **offset aperture 6** of reduced width and less than the widest width of the bolt wherein at least one side wall of this aperture comprises the engageable peripheral wall.

In some forms the lock includes a casing, an **unlatching slide 7**, wherein the bolt includes a **return arm 8** engageable by a **drive end of the slide** 9 to cause the bolt to retract into the casing **against bolt biasing means 10.** Preferably the unlatching slide comprises a ~~rectlinearly vertically~~ displaceable plate supported within the casing ~~against an inside wall~~ and having a **lead end 11** . ~~Preferably the return arm supports a sideways protruding bolt pin 12 that lies within the locus of movement of the lead end.~~ Preferably the said pin is profiled so that the effective radial length of the point of contact on the return arm reduces as the cam advances towrds the fully restricted position.

Preferably the portions in contact when in contact of the unlatching slide and protruding bolt pin are characterized by relative angular displacement without relative translation. Preferably, the bolt when being displaced by the unlatching slide supports the adjacent end of the unlatching slide. Preferably the motion of the unlatching slide is at least in-part crank motion wherein the motion of a portion adjacent the bolt has a locus of displacement that is circular while the motion of a portion adjacent the unlatching cam has a locus of displacement that is substntially rectilinear.

In some forms the lock includes at least one **unlatching cam 13** that has angled **driving shoulders** 14 either of which may engage an associated **driven shoulder** 15 of the unlatching slide to cause the said slide to be displaced towards the bolt whereby to cause the bolt to retract.

In some forms the lock includes an **unlatching lever (not shown)** connected by **shaft** (not shown) to an associated **unlatching cam** through engagement in a **recess 16** in the cam. Preferably the unlatching slide is biassed towards the unlatching cam by **slide biassing means** 17 whereby to define and urge the lever towards an undisplaced position. Preferably there is an **exterior unlatching cam** connected to an **exterior lever** by an **exterior shaft** and preferably there is an **interior unlatching cam** connected to an **interior lever** by an **interior shaft** whereby the bolt can be caused to rotract by operation of either lever. Preferably, the exterior unlatching cam has a **exterior stop recess** 18 and the casing includes a rectilinearly displaceable **stop member 19** that is displaceable by hand to engage within the stop recess whereby to restaroin the exterior lever against displacement. Preferably the interior unlatching cam has ramped peripheral **unstopping portions 20**, which when both cams are undisplaced, eminate from positions adjacent each side of the stop recess wherein displacement of the interior unlatching cam in either direction brings an unstopping portion into contact with the stop member to cause it to be displaced from the stop recess.

In some forms the lock includes a **deadlocking member** 21 supported by the unlatching slide and displaceable relative to the said slide. Preferably the deadlocking member is biassed towards the arcular blade. Preferably when the bolt is fully extended and the unlatching slide is undisplaced and adjacent each driven shoulder, a **leading portion** 22 of the deadlocking slide is disposed behind the blade restricting the bolt from being inwardly displaced. Preferably, when the unlatching slide commences displacement, the initial movement causes the leading portion to be displaced from behind the blade to enable the bolt to be displaced to the reytracted position. Preferably the deadlocking member is a **rocker-like member** supported on a **pivotal shaft** carried by the unlatching slide.

In some forms the lock includes a **pre-latching stop 23** that restrains the bolt in a partly extended position, said stop having a **stop arm** 24 with an **engaging stop end** that is biassed away from the periphery of the bolt. Preferably the **stop end is ramped in profile** 25 and preferably this mates within a **mating recess** of the bolt and preferably the angle of the ramps is such that movement of the engaging stop end away from the bolt causes the bolt to move towards the retracted position. Preferably the bolt biassing means is sufficiently strong that the bolt cannot be caused to move towards the retracted psotion by the stop member. Preferably the stop includes an **opposed arm** 26 having an **end portion** that lies within the locus of movement of a **compression spring** 27 carried in the drive end of the unlatching slide. Preferably when the unlatching slide has caused the bolt to retract, the compression spring acts on the opposed arm to cause the opposite end to become biassed towards the bolt.

The invention further provides a lock where the bolt is disposed vertically between the unlatching cam and the key operable double cylinder.

The invention further provides a lock according to any features described above and where dimension L of Figure 1 is 85.00 mm whereby to render the lock compatatable with door furniture of common configuration

The invention further provides a lock according to any features described above and where dimension l_1= is substantially the same as that of common security door locks.

The invention further provides a lock according to any features described above and where $l_2 = l_{1}/2$

The invention further provides a lock substantially as described herein with reference to and as illustrated in the accompanying drawings.

The invention provides novel operational features that do not exist in many locks, these being:

- the exterior lever can be locked to prevent the lock from being operated from the exterior,
- operation of the interior lever unlocks the exterior lever
- operation of either lever in either direction unlatches the bolt
- the bolt engages behind the strike plate to resist attack by jimmying
- the bolt can be marginally vertically misaligned with the strike plate and still function correctly

As is common in security door locks, (but not shown) the lock preferably includes a deadlkocking slide and an interior snib-locking lever that is operably connected to a double cylinder having a floating cam as is common in security doors. This operable connection is according to that described in Aust Pat Appl 81454/01 that is herein included by reference. This deadlocking slide has a leading end that is engageable behind the bolt to restain the bolt from being displaed by either lever to the retracted position.

Importantly, according to 81453/01

"The deadlocking slide comprises a blade-like member with a leading end 28 that is engageable with the latch bolt to deadlock the latch bolt, said deadlocking slide having a side recess 29 engaged with a sideways protruding pin 30 protruding from the angularly displaceable locking arm 8, said pin being disposed away from the pivotal axis of the locking arm to operably interconnect the locking arm 8 and deadlocking slide.

The deadlocking slide also includes a drive recess 31 engageable with an operative portion of the first cam, (the first cam in some preferred embodiments comprising part of a key operable cylinder comprising a conventional cylinder sub-assembly), the drive recess 31 being defined in-part by opposed drive shoulders 32 and 33 respectively, and as can be seen from examining the figures, the operative portion of the first cam comprising and end portion of the cam arm 7 disposed from the first cam pivotal axis and defined in-part by an arcular surface 35. Within a first range of first cam angular disposition the first cam and the deadlocking slide are operably coupled whereby the arm 7 is angularly displaceable by displacement of the deadlocking slide and the deadlocking slide is displaceable by angular displacement of the arm 7; and further more, while the first cam is within the first range, the deadlocking slide is displaceable by angular displacement of either the locking arm 8 or the first cam; i.e. the deadlocking slide can be actuated (i.e. displaced between the undisplaced position and the deadlocking position corresponding to a deadlocked engaging member) by the locking arm 8 and by the first cam" It will be appreciated that other aspects of 814543/01 are applicable to the current invention"

Throughout this specification and claims which follow, unless the context requires otherwise, the word "comprise", or variations such as "comprises" or

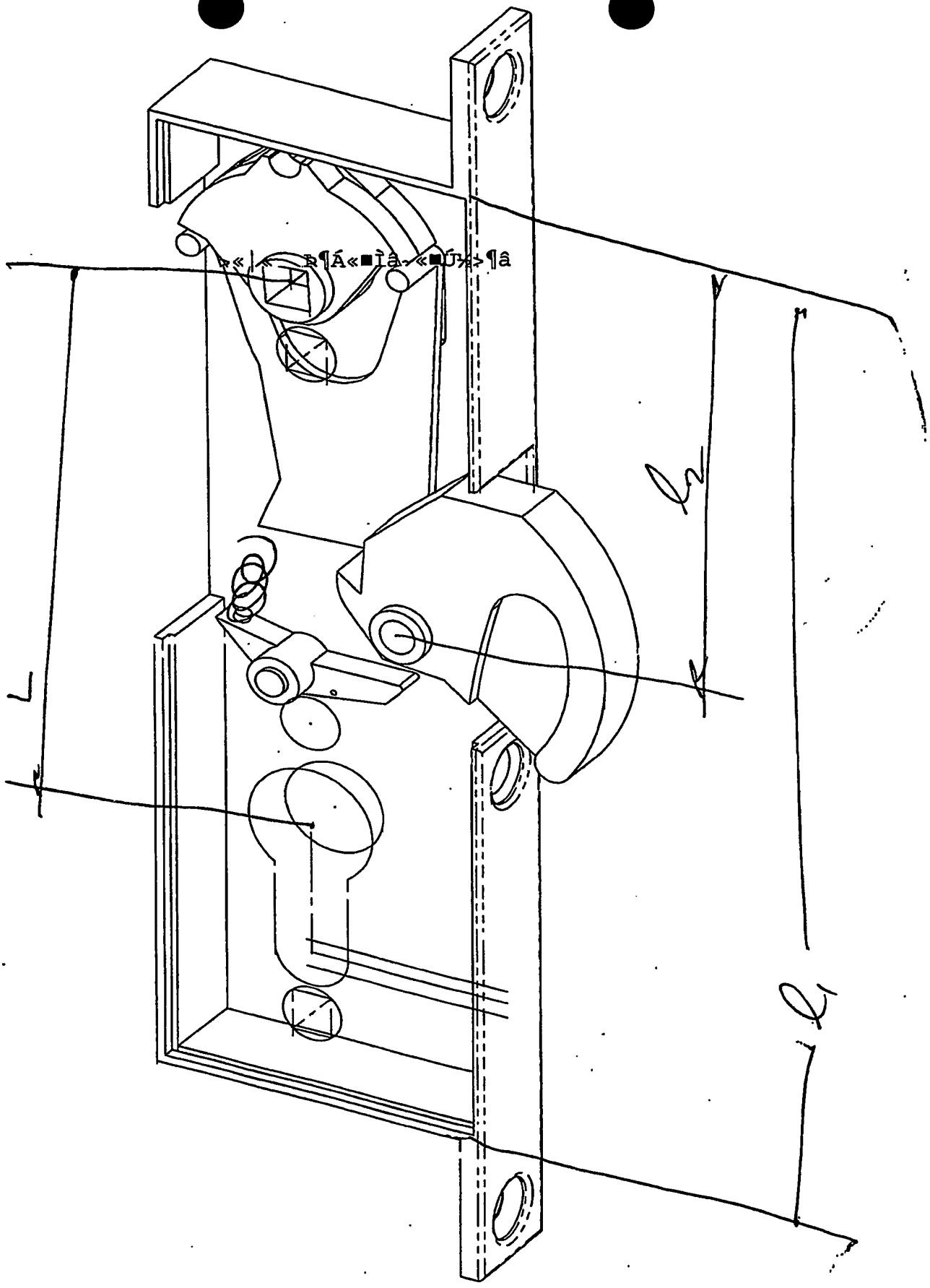
"comprising", will be understood to imply the inclusion of a stated integer or group of integers but not the exclusion of any other integer or group of integers.

Throughout this specification and claims which follow, unless the context requires otherwise, the positional prepositions such as rear, forward are used to assist in description of the preferred embodiments and have in general no absolute significance.

Keren Jorgenson **Date:**

~~12~~/12/102

17/12/02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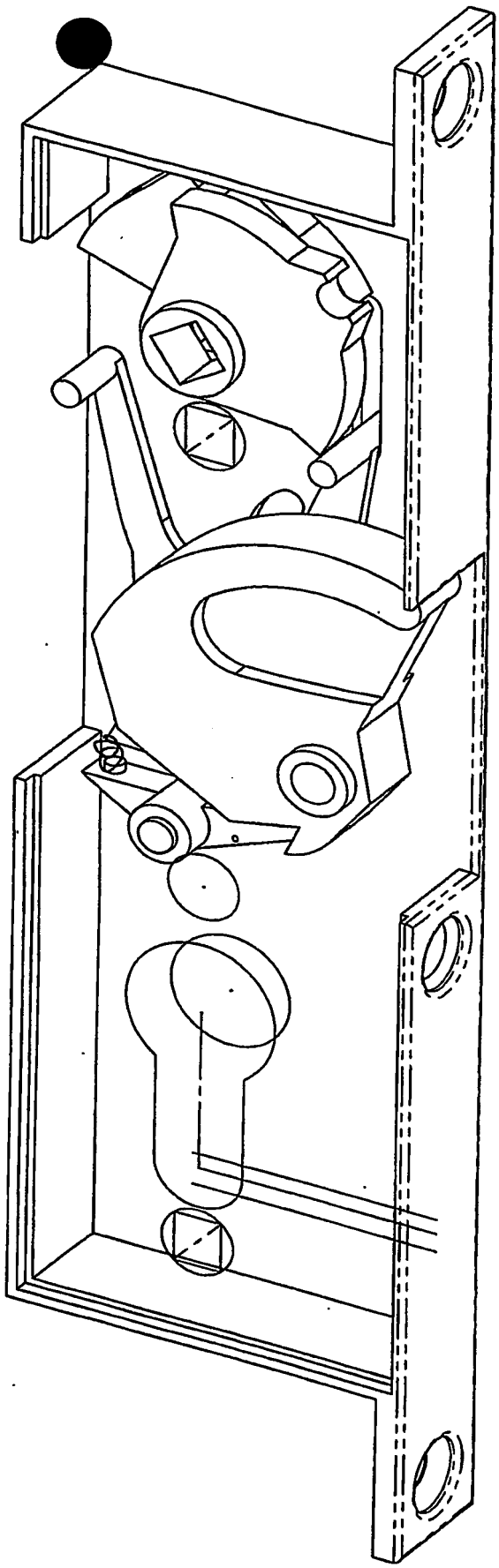

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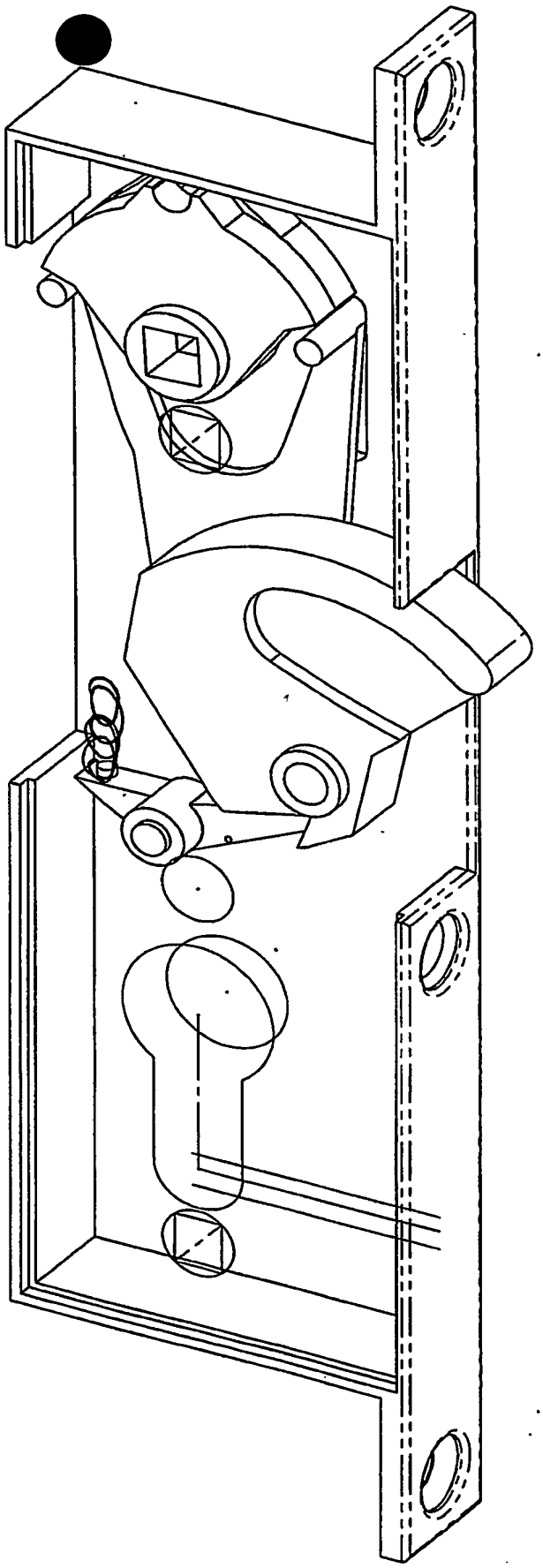

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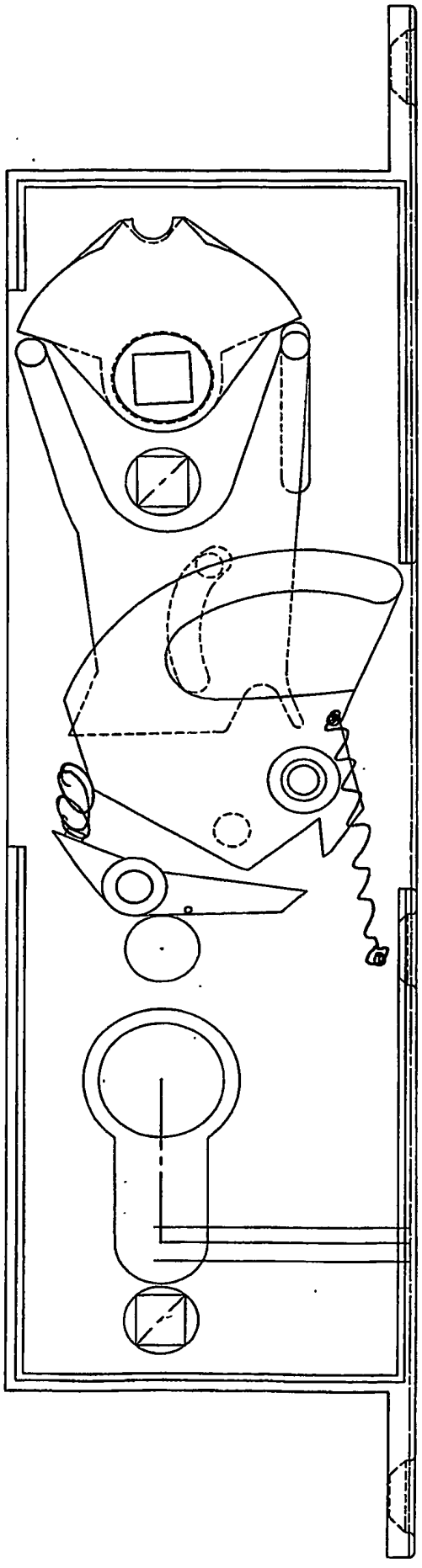

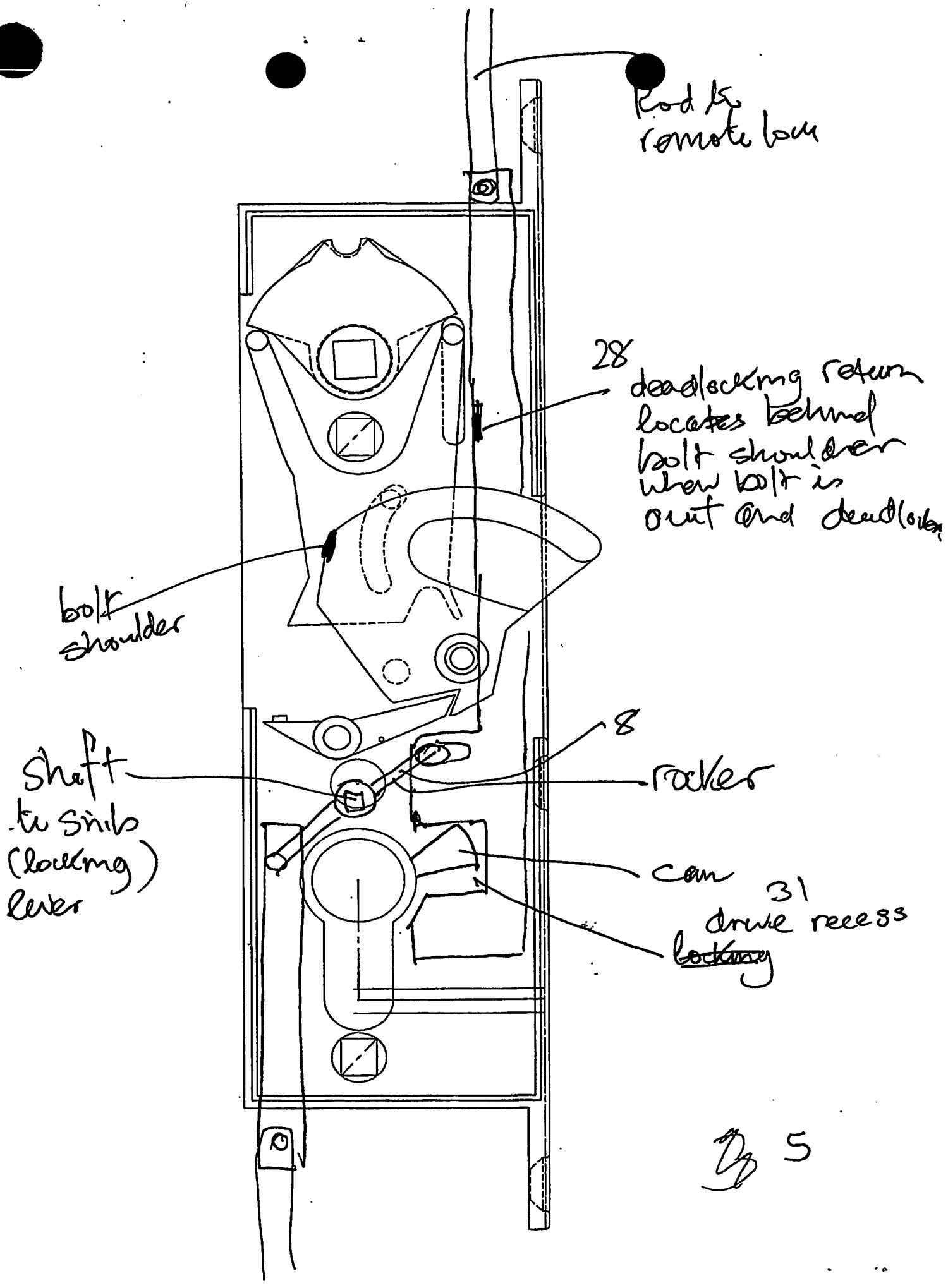
Rod to remote bolt
28
deadlocking return locates behind bolt shoulder when bolt is out and deadlocked
bolt shoulder
8
rocker
shaft to sinb (locking) lever
cam
31
drive recess
locking

5

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